

Mozar Baptista da Silva

"Metaheurísticas Sequenciais e Paralelas para uma Generalização do Problema do Caixeiro Viajante"

In this work we propose a new mathematical formulation and new metaheuristics based on concepts of GRASP - Greedy Adaptive Search Procedure, VNS - Variable Neighborhood Search and Tabu Search for getting an approximate solution for a generalization of the classical Traveling Salesman Problem (TSP) known in literature as The Traveling Purchaser Problem (TPP). We present different techniques for construction of initial solution and local search, based on concepts of GRASP, VNS, conventional heuristics and Tabu Search. The proposed algorithms were compared with the best algorithm in literature, the Tabu Search procedure that use dynamic lists proposed by Voss. We propose parallel versions of these algorithms, using three models: master-slave, distributed and independent. We also propose parallel versions that use different metaheuristics in each process that compose the parallel program. We analyze the performance of the proposed algorithms comparing them among themselves and considering the execution times, the costs and the speedups in case of the parallel algorithms.